II. CLAIMS

1. (Currently Amended) A ~~$G_{\alpha q}$ Gustducin~~ G16/gust 44 or G15/gust44 chimeric G-protein wherein the last 44 amino acids of the ~~$G_{\alpha q}$~~ G16/gust 44 or G15/gust44 protein sequence are replaced with a 44 amino acid unit of Gustducin, where such 44 amino acid unit of Gustducin is the last 44 amino acids of SEQ ID NO:2.

2-5. Cancelled

6. (Previously Presented) A G-protein according to claim 1 encoded for by the nucleic acid set forth in SEQ ID NO:1.

7. (Previously Presented) A nucleic acid comprising the nucleotide sequence set forth in SEQ ID NO:1 encoding for a G-protein according to claim 1.

8. (Previously Presented) An expression vector comprising nucleic acid comprising the nucleotide sequence set forth in SEQ ID NO:1 encoding for a G-protein according to claim 1.

9. (Previously Presented) A host cell transformed with an expression vector according to claim 8.

10. (Previously Presented) A method of producing a chimeric G-protein according to claim 1 comprising the step of culturing host cells having contained therein an expression vector encoding for the chimeric G-protein, under conditions sufficient for expression of said G-protein, thereby causing production of the protein, and recovering the protein produced by the cell.

11. (Previously Presented) A method of analysis and discovery of modulators of bitter taste receptors using the chimeric proteins according to defined in claim 1.

12. (Previously Presented) A method according to claim 11 employing a mammalian cell-based assay employing a transfected gene or cDNA encoding a chimeric protein of the invention and a taste receptor, the method comprising the steps of contacting a compound with cells, and determining the functional effect of the compound on chimeric G-protein.

13. Previously Presented) A method according to claim 10 wherein the functional effect is determined by measuring the changes in intracellular messengers IP3 or calcium^{2+}.

14-17. Cancelled

18. (Currently Amended) A ~~$G_{\alpha q\text{-}Gustducin}$~~ G16/gust 44 or G15/gust44 chimeric G-protein wherein the last 44 amino acids of the ~~$G_{\alpha q}$~~ G16/gust 44 or G15/gust44 protein sequence are replaced with a 44 amino acid unit of Gustducin, where such 44 amino acid unit of Gustducin is the last 44 amino acids of SEQ ID NO:2, and wherein the resulting $G_{\alpha q\text{-}gust44}$ chimeric G-protein has a sequence homology of at least 80% in the last 44 amino acids of SEQ ID NO:2.

19. (Previously Presented) The chimeric G-protein of claim 18 having a sequence homology of at least 90% in the last 44 amino acids of SEQ ID NO:2.

20. (Previously Presented) The chimeric G-protein of claim 18

having a sequence homology of at least 95% in the last 44 amino acids of SEQ ID NO:2.

21. (Currently Amended) A ~~$G_{\alpha q\text{-}Gustducin}$~~ G16/gust 44 or G15/gust44 chimeric G-protein wherein the last 44 amino acids of the ~~$G_{\alpha q}$~~ G16/gust 44 or G15/gust44 protein sequence are replaced with a 44 amino acid unit of Gustducin, where such 44 amino acid unit of Gustducin is the last 44 amino acids of SEQ ID NO:2, and wherein the resulting $G_{\alpha q\text{-}gust44}$ chimeric G-protein has a sequence homology of at least 80% to SEQ ID NO:2.

22. (Previously Presented) The chimeric G-protein of claim 21 having a sequence homology of at least 90% to SEQ ID NO:2.

23. (Previously Presented) The chimeric G-protein of claim 21 having a sequence homology of at least 95% to SEQ ID NO:2.

24. (Currently Amended) A ~~$G_{\alpha q\text{-}Gustducin}$~~ G16/gust 44 or G15/gust44 chimeric G-protein wherein the last 44 amino acids of the ~~$G_{\alpha q}$~~ G16/gust 44 or G15/gust44 protein sequence are replaced with a 44 amino acid unit of Gustducin, where such 44 amino acid unit of Gustducin is the last 44 amino acids of SEQ ID NO:2, and wherein the resulting $G_{\alpha q\text{-}gust44}$ chimeric G-protein has a sequence homology of at least 80% to SEQ ID NO:2 and the chimeric protein binds to one or more of the human bitter, sweet and umami taste receptors.

25. (Previously Presented) The chimeric G-protein of claim 24 having a sequence homology of at least 90% to SEQ ID NO:2.

26. (Previously Presented) The chimeric G-protein of claim 24 having a sequence homology of at least 95% to SEQ ID NO:2.

27. Canceled

28. (Previously Presented) A nucleic acid encoding for a G-protein according to claim 18.

29. (Previously Presented) An expression vector comprising nucleic acid comprising the nucleotide sequence encoding for a G-protein according to claim 18.

30. (Previously Presented) A host cell transformed with an expression vector according to claim 29.

31. (Previously Presented) A method of producing a chimeric G-protein according to claim 18 comprising the step of culturing host cells having contained therein an expression vector encoding for the chimeric G-protein, under conditions sufficient for expression of said G-protein, thereby causing production of the protein, and recovering the protein produced by the cell.

32. (Previously Presented) A method of analysis and discovery of modulators of bitter taste receptors using the chimeric proteins according to defined in claim 18.

33. (Previously Presented) A method according to claim 32 employing a mammalian cell-based assay employing a transfected gene or cDNA encoding a chimeric protein of the invention and a taste receptor, the method comprising the steps of contacting a compound with cells, and determining the functional effect of

the compound on chimeric G-protein.

34. (Previously Presented)) A method according to claim 31 wherein the functional effect is determined by measuring the changes in intracellular messengers IP3 or calcium^{2+}.